202

8.6 HW

p442-443 9, 11, 13-19, 22, 25

9. A(-3,3) B(-4,-1) C(5,-1) D(2,3)

a. $\overline{AB}$ $m = \frac{3--1}{-3--4} = \frac{4}{1} = 4$ $\overline{CD}$ $m = \frac{3--1}{2-5} = \frac{4}{-3}$

$\overline{BC}$ $m = \frac{-1-1}{5--4} = 0$ ✓ $\overline{AD}$ $m = \frac{3-3}{2--3} = 0$ ✓

$\overline{AD} \parallel \overline{BC}$ + $\overline{AB} \not\parallel \overline{CD}$

b. ~~$AD = \sqrt{(2--3)^2 + (3-3)^2} = 5$~~ $CD = \sqrt{(-3)^2 + 4^2}$

$AB = \sqrt{1^2 + 4^2} = \sqrt{17}$ $\neq$ $\sqrt{9+16} = \sqrt{25}$

Not isosceles

11. C(-1,1) D(-5,-3) E(-4,-10) F(6,0)

$\overline{CD}$ $m = \frac{1--3}{-1--5} = \frac{4}{4} = 1$ $\overline{EF}$ $m = \frac{-10-0}{-4-6} = \frac{-10}{-10} = 1$

$\overline{DE}$ $m = \frac{-10--3}{-4--5} = \frac{-7}{1} = -7$ $\overline{FC}$ $m = \frac{1-0}{-1-6} = \frac{1}{-7}$

$\overline{CD} \parallel \overline{FE}$ $\overline{DE} \not\parallel \overline{FC}$

$DE = \sqrt{1^2 + (-7)^2} = \sqrt{50}$ $FC = \sqrt{(-7)^2 + 1^2} = \sqrt{50}$

Isosceles

13. $20 = (x+32)\frac{1}{2}$

$40 = x + 32$

$8 = \cancel{x} = DE$

14. $15 = \frac{1}{2}(x+26)$

$30 = x + 26$

$4 = x = VT$

15. $Med = \frac{1}{2}(8+20)$

$Med = 14$

$m\angle W = 110°$

$m\angle Z = 110°$

$180 - 70 = 110$

16. $AB = \frac{1}{2}(12+20)$, 32

$AB = 16$

$m\angle Q = 180 - 120 = 60°$

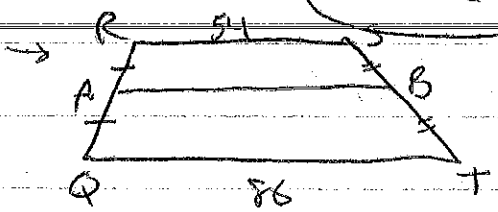
$m\angle S = 180 - 45 = 135°$

17. $AB = \frac{1}{2}(54+86)$, 140

$AB = 70$

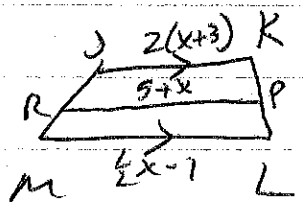
$GH = \frac{1}{2}(70+54)$, 124

$GH = 62$



18. $JK = \frac{1}{2}(70+86)$, 156

$JK = 78$

19. 

$5 + x = \frac{1}{2}\left[2x + 6 + \frac{1}{2}x - 1\right]$

$2\left[5 + x = \frac{1}{2}\left(2\frac{1}{2}x + 5\right)\right]$

$10 + 2x = 2\frac{1}{2}x + 5$

$5 = \frac{1}{2}x$

$10 = x$

$RP = 5 + 10 = 15$

22. $B(1,2)$ $C(4,4)$ $D(5,1)$ $E(2,-1)$

$\overline{BC}$ $m = \frac{4-2}{4-1} = \frac{2}{3}$

$\overline{CD}$ $m = \frac{4-1}{4-5} = \frac{3}{-1} = -3$

$BC = \sqrt{3^2 + 2^2} = \sqrt{13}$

$\overline{DE}$ $m = \frac{1--1}{5-2} = \frac{2}{3}$

$\overline{BE}$ $m = \frac{2--1}{1-2} = \frac{3}{-1} = -3$

$CD = \sqrt{1+9} = \sqrt{10}$

2 pairs of ll sides → Parallelogram.

No ⊥ sides, No cons. ≅ sides

25. $R(0,3)$ $S(3,0)$ $T(0,-3)$ $Q(-3,0)$

$\overline{RS}$ $m = \frac{3-0}{0-3} = -1$

$\overline{RQ}$ $m = \frac{3-0}{0--3} = \frac{3}{3} = 1$

$\overline{QT}$ $m = \frac{-3-0}{0--3} = \frac{-3}{3} = -1$

$\overline{ST}$ $m = \frac{0--3}{3-0} = \frac{3}{3} = 1$

$RS = \sqrt{9+9} = \sqrt{18}$

$ST = \sqrt{9+9} = \sqrt{18}$

Square → opp sides ll, consecutive sides ⊥ & ≅.